

in the inorganic world. I have never come across any discussion of this the absolutely fundamental problem of all heredity and the stability of species ; though I have read many passages implying that, in principle, the phenomena of growth are readily explainable in terms of familiar principles of physics and chemistry. Does the molecule grow like amoeba and then divide itself into two equal parts each of exactly the same atomic constitution as the parent molecule ? This seems to be the common assumption among geneticists in regard to the genes. Each gene, at mitosis or cell-division, is supposed to divide itself into two exactly similar halves ; and { each half to grow again to the original size and then divide itself once more. But, if the gene is a molecule, this is impossible. If the molecule grows by attaching atoms to itself, it is no longer the same molecule. And if a molecule splits into two parts, again the two daughter molecules must be of very different constitution from that of the parent molecule.

Suppose alternatively that the gene is a cluster or chain of similar molecules loosely linked to form a super molecule, growing like a crystal by attaching to itself other molecules of similar constitution which are flying about in the mother liquid or plasma. Then we have on our hands the question: Where do these other loose molecules come from ? Since there is a multiplication of the molecules of this kind, they must be formed by

the composition of atoms derived from other
molecules
in the plasma. By the hypothesis the gene is,
to begin
with, the only molecule or group of molecules
of this
constitution within the egg-cell. It must have
the power
to detach the required atoms from other
molecules and
to cause them to group themselves into
molecules re-